Shifting Paradigms
Treating Pediatric Obesity

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Objectives

- To better understand environmental influences on obesity rates
- To become familiar with the Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity
- To understand the staged approach to pediatric weight management
Prevalence

Between 1980 and 2000 obesity rates doubled in children and tripled in adolescents\(^1,2,3\)

Obesity rates have remained relatively stable since 2004\(^4\).

16.9% of children between 2-19 years of age surveyed in the National Health Examination Survey (NHANES, 2007-2008) had a BMI of >95% for age\(^5\)

In 2011, 32% of Oklahoma adults were obese, 31.4% of adults with no activity in the last month\(^6\)

Ethnic disparities exist with Non-Hispanic African American females and Hispanic males having the highest rates of obesity nationally (29.2% and 26.8% respectively)\(^4\)
Figure 1. Trends in obesity among children and adolescents: United States, 1963–2008

NOTE: Obesity is defined as body mass index (BMI) greater than or equal to sex- and age-specific 95th percentile from the 2000 CDC Growth Charts.

Obesity Trends* Among U.S. Adults

BRFSS, 1985

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” woman)

CDC
Obesity Trends* Among U.S. Adults

BRFSS, 1990

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” woman)

No Data         <10%           10%–14%

CDC
Obesity Trends* Among U.S. Adults
BRFSS, 1995
(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” woman)
Obesity Trends* Among U.S. Adults

BRFSS, 2000

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” woman)

CDC
Obesity Trends* Among U.S. Adults

BRFSS, 2005

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2010
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Direct Costs

- $147 billion a year was spent on health care costs for treating disease conditions that result from obesity (2008)\(^7\), with $854 million per year spent in Oklahoma alone\(^8\).
- Obesity associated hospital costs in children 6-17 years of age tripled and length of stay related to the diagnosis of obesity increased between 1979 and 1999\(^9\).
- Obesity is associated with a 36% increase in clinical and hospital costs and a 77% increase in medication costs\(^{10}\).
Co-Morbid Conditions

- Lipid abnormalities
- Hypertension
- Hyperinsulinemia
- Type II diabetes
- Orthopedic problems
- Sleep apnea
- Gallbladder disease
- Gastroesophageal reflux
- Depression
- Anxiety
How Did We Get Here?
Social Ecological Model

- This is not just an individual and family problem!
- Societal shifts and community environment contribute to obesity

Source: CDC
CMS Decision for Intensive Behavioral Therapy for Obesity$^{21,22}$

- Based on the Recommendations of the U.S. Preventive Services Task Force
- Uses 5-A Framework: Assess, Advise, Agree, Assist, Arrange
- One face-to-face visit every week for the first month
- One face-to-face visit every other week for months 2 to 6
- One face-to-face visit every month for months 7 to 12, if the beneficiary meets the 3 kg weight loss requirement
- If the beneficiary does not meet the weight loss criteria, assess readiness to change again in 6 months
Expert Committee Recommendations

- Chartered by the American Medical Association, Healthcare Resources Administration, and the Centers for Disease Control and Prevention
- Made up of members from multiple medical disciplines
- Based on current evidence based medicine and best practices of experienced clinicians
- Recommendations are for assessment, treatment and prevention
Expert Committee Recommendations\textsuperscript{13}

1. Identification
   Calculate and plot BMI at every well child visit

2. Assessment
   Medical Risk
   Sedentary time
   Eating
   Physical activity

   Behavior Risk
   Family and patient concern and motivation

3. Prevention
   Target behavior
   Identify problem behaviors
   If no problem behaviors, praise current practice
   Patient/family counseling
   Review any risks (e.g., DM)
   Use patient-directed techniques to encourage behavior change (see algorithm table)

   BMI 5th-84th percentile
   Child history & exam
   Child growth
   Parental obesity
   Family history
   Laboratory, as needed

   BMI 85th-94th percentile
   Child history & exam
   Child growth
   Parental obesity
   Family history
   Laboratory

   BMI ≥ 95th percentile
   Child history & exam
   Child growth
   Parental obesity
   Family history
   Laboratory

   Sedentary time
   Eating
   Physical activity

   Family and patient concern and motivation

   Intervention for Treatment
   (Advance through stages based on age and BMI)

   Stage 1 Prevention Plus
   Primary care office

   Stage 2 Structured Weight Management
   Primary care office with support

   Stage 3 Comprehensive Multidisciplinary Intervention
   Pediatric weight management center

   Stage 4 Tertiary Care Intervention (select patients)
   Tertiary care center
Assessment

- Universal
- BMI
- Diet
- Physical Activity
- Medical Risk
- Laboratory Evaluation
Universal Assessment

- Bring it up!
- Be “careful to discuss HABITS rather than focusing on HABITUS”¹¹
- Anticipatory guidance should be given at each well check for every age.
- Anticipatory guidance should focus on behavioral modifications which improve dietary and physical activity choices.
Body Mass Index

BMI = \frac{\text{Weight in kilograms}}{\text{Height in meters}^2}
Adult Body Mass Index

- Underweight = <18.5
- Normal Weight = 18.5 – 24.9
- Overweight = 25 – 29.9
- Obese = >30
- Morbid Obesity = >40
Child and Adolescent Body Mass Index

- Underweight < 5% for age
- Healthy weight = 5 – 85% for age
- Overweight = > 85%
- Obese = > 95%
- Severe Obesity = > 99%
## 99th Percentile BMI Cutoff Points

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<th>Age</th>
<th>Boys</th>
<th>Girls</th>
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<tbody>
<tr>
<td>5</td>
<td>20.1</td>
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<td>39.1</td>
</tr>
<tr>
<td>17</td>
<td>34.4</td>
<td>40.8</td>
</tr>
</tbody>
</table>
Dietary Assessment

- SWEETENED BEVERAGES
- Eating out
- Portion sizes
- Energy density of foods consumed
- Fruit and vegetable consumption
- Breakfast
- Eating patterns
Physical Activity Assessment

- Minutes per day of moderate physical activity
- Minutes per day of routine activity
- MINUTES PER DAY OF SEDENTARY BEHAVIOR/SCREEN TIME
Family History

- Obesity
- Type II diabetes
- Hyperlipidemia
- Hypertension
Medical Risks

- Obstructive sleep apnea
- Non alcoholic fatty liver disease
- Gastroesophageal reflux disease
- Insulin resistance/type II Diabetes
- Hyperlipidemia
- Psychiatric conditions
- Blount’s Disease
- Slipped Capital Femoral Epiphysis
- Acanthosis, hyperkeratosis pilaris, striae
- Pseudotumor ceribri
- Does your patient have an existing disorder for which they are on a medication that causes weight gain? Is there an alternative?
## Laboratorv Evaluation

<table>
<thead>
<tr>
<th>BMI 85&lt;sup&gt;th&lt;/sup&gt; to 94&lt;sup&gt;th&lt;/sup&gt;,</th>
<th>No risk factors</th>
<th>Lipid panel every two years</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI 85&lt;sup&gt;th&lt;/sup&gt; to 94&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Risk Factors present</td>
<td>Lipid panel, glucose AST/ALT every two years</td>
</tr>
<tr>
<td>BMI ≥ 95&lt;sup&gt;th&lt;/sup&gt;</td>
<td>With or without risk factors</td>
<td>Lipid panel, glucose AST/ALT every two years</td>
</tr>
</tbody>
</table>
NOW WHAT?
Staged Treatment Approach$^{13,14}$

- Stage 1: Prevention Plus
- Stage 2: Structured Weight Management
- Stage 3: Comprehensive Multidisciplinary Intervention
- Stage 4: Tertiary Care Intervention
Stage 1 Prevention Plus\textsuperscript{13-14}

- Treatment provided in primary care setting
- Team approach between families/provider
- Healthy lifestyles education, goal setting
- Follow-up every 3 to 6 months
Stage 2 Structured Weight Management$^{13,14}$

- Builds on target behavior goals in stage 1
- Close monitoring of health related behaviors and goals
- Diet diaries and physical activity logs are incorporated
- Follow-up once monthly
- May refer to dietitian or counselor
Dietary Change\textsuperscript{13,14}

- **Limit consumption of sweetened beverages**
- Increase fruit and vegetable consumption to $\geq 5$ servings per day
- Limit consumption of 100% fruit juice
- Eat diets rich in calcium and fiber with balanced macronutrients
- Limit consumption of energy dense foods
- Eat breakfast daily
- Eat smaller portion sizes
- Eat away from home less
- Encourage family meals
A Day of Beverages
1370 Calories

- 110 calories: orange juice (8 oz.)
- 400 calories: mocha (medium)
- 280 calories: regular cola (20 oz.)
- 230 calories: fruit drink (16 oz.)
- 200 calories: sweet tea (16 oz.)
- 150 calories: beer (12 oz.)

Source: Cooperative Extension
Physical Activity\textsuperscript{13}

- Increase time spent in structured and unstructured activities
- Recommend $\geq 60$ minutes moderate activity most days of the week
- Decrease screen time to $\leq 2$ hours per day (less than one hour per day for patients who do not make progress)
- Encourage non-exercise physical activity in addition to exercise
- Address barriers to physical activity
Behavioral Modification$^{13,14}$

- Do not eat in front of TV
- No TV or video games in the bedroom
- Do not use food as a reward
- Parents should act as role models
- Families should eat and exercise together
- Create a food safe home
- Monitor diet and physical activity more closely
Stage 3 Comprehensive Multidisciplinary Intervention\(^{13,14}\)

- Intensive, comprehensive, multidisciplinary intervention delivered by a supportive alliance of trained individuals
- Team is comprised of a dietitian, counselor or clinical psychologist, physical activity specialist, and physician
- Visits are frequent (initially once weekly transitioning to less frequent visits)
- Healthy lifestyle behavior goals are similar to those in stage 2
Family Health and Nutrition Clinic

- Stage 3 pediatric obesity treatment program
- Established in 2009
- Eligible children: ages 2 to 18 with a BMI greater than the 85 percentile who have completed 3 to 6 months of stage 1 therapy
- Individualized family therapy supporting health behavior change
- Multidisciplinary and comprehensive
- Team consists of pediatrician, dietitian, clinical psychologist and exercise specialist
- Extensive community outreach, advocacy and professional training
Stage 4 Tertiary Care Intervention$^{13,14}$

- Reserved for severely obese youth ages 11 and above with a BMI greater than 95% with co-morbidities or those with a BMI greater than 99% who have shown no improvement in stages 1-3
- Treatment goes beyond healthy lifestyle education to very low calorie diets, medications, meal replacements and bariatric surgery
- Follow-up is weekly for 8-12 weeks then 1-2 times monthly depending on patient and family need
- Therapy occurs in a specialized center with trained personnel
- Nearest programs: Texas Children’s Hospital, Cincinnati Children’s Hospital, Nationwide Children’s Hospital (Columbus Ohio), and ROSE Medical Center (Denver, Colorado)
Medical Community Model$^{19,20}$

- Systematic staged approach coupled with local community organizations to maximize obesity treatment
- Blends principles of public health and primary care
- Emphasizes that clinical responsibility goes beyond the individual/family to the broader community
Community Partners

- Pink to Orange Program (Saint Francis Health Zone ShapeDown)
- Cowboys Get Healthy Get Fit (United Way funded, YMCA/Cooperative Extension)
- OSU Cooperative Extension Community Nutrition Education Program
- It’s All About Kids Program - Tulsa City County Health Department
- Tulsa County Wellness Partnership
Advocacy

- PARTICIPATE IN LOCAL COALITIONS
- Food insecurity
- Vending in schools
- Menu labeling
- Lack of physical education in schools
- Children no longer walking to school (Ban the carline!)
- Lack of safe places to be physically active
- Reimbursement
- Support legislation which promotes healthy lifestyles
Resources

- Oklahoma State University Family Health and Nutrition Clinic
- ShapeDown
- Oklahoma Fit Kids Coalition
- Oklahoma Institute for Child Advocacy
- Centers for Disease Control and Prevention
- Oklahoma State Department of Health
- American Medical Association
- American Academy of Pediatrics
- United State Department of Agriculture
- 5-2-1 Almost None (www.growuphealthy.com)\textsuperscript{16}
- Expert Committee Recommendations\textsuperscript{13}
Review

- Social-environmental changes have contributed to the rise in obesity
- Provide universal assessment of risk for and incidence of overweight and obesity
- Provide universal anticipatory guidance focusing on healthy habits
- Follow expert committee recommendations
- Form community partnerships, know your resources, and advocate for change at a community and policy level
References

6. Oklahoma State Department of Health State of the State’s Health Report 2011
15. 521 Almost None, www.growuphealthy.com Nemours Health and Prevention Services
17. Coordinated Approach To Child Health
Burn Calories, Not Electricity

Take the Stairs!
Walking up the stairs just 2 minutes a day helps prevent weight gain. It also helps the environment.

Learn more at www.nyc.gov or call 311.

Your health. Your choice.

30 seconds to the top
30 steps to better health

burn calories
not electricity

take the stairs